

## PATENT SPECIFICATION

564,302



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## COMPLETE SPECIFICATION

### Improvements in Devices for Photographing Stereoscopic Pairs of Pictures through the Single Lens Combination of a Camera

I, REGINALD DAWES SPINNEY, The Orchards, Ardens Grafton, Near Alcester, Warwickshire, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to devices for enabling the members of stereoscopic pairs of pictures to be photographed simultaneously through the lens combination of a single lens camera and is suitable for photographing such pairs of pictures in the frames of cinematograph films. I employ a known arrangement of four reflectors for simultaneously reflecting left and right eye views of an object or scene through the lens combination of a camera so that the left and right eye pictures are caused to appear on the negative side by side; such a known arrangement may be likened to two modified periscopes placed end to end. Alternatively the four reflectors may be arranged to produce the members of stereoscopic pairs of pictures one above the other on the negative or film frame; this arrangement may be likened to a modified optical range finder. In both cases each left and right eye picture fills half the negative or film frame and the width or height, as the case may be, of the space occupied by each picture of the pair is about half that taken in the normal way by the lens concerned.

The reflectors may be carried in a known manner in a housing permanently attached to the body of the camera or preferably constructed to be readily attached thereto when required by convenient means. The housing is so attached to the camera that the lens can be focussed without moving the said housing if desired.

In accordance with my invention I provide the housing with a forwardly extending hood to prevent unwanted light rays being reflected through the lens. The hood is preferably arranged to be folded flat when not in use.

If desired two of the reflectors may be provided in known manner with means for being moved about the axes of vertical

spindles in order that the centre of an object or scene near to or far from the camera may be caused to appear in the centre of each of the stereoscopic photographs taken with the device.

I may make provision for the use of a view finder in the camera when said housing and hood are attached to the camera by means of an opening or hole in the housing through which the scene to be photographed may be viewed via two of the mirrors. Alternatively an open type view finder may be supported on a platform mounted on the camera for viewing above the hood.

The reflectors may be flat or prismatic.

In the accompanying drawings on one sheet like parts are numbered alike.

Fig. 1 shows a part sectional plan and Fig. 2 a side elevation of the arrangement for taking stereoscopic pairs of pictures side by side on a negative or in a cinematograph film frame in which 1 is the camera, 2 the lens mount, and 3, 3a are mirrors rotatably mounted if desired for adjustment about the axes of vertical spindles 3b, 3c. The mirrors 3, 3a respectively reflect the image beams to central mirrors 4, 4a by which they are simultaneously reflected through the lens 2. 5 is the mirror housing with a hinged back plate 5a held in place by a spring clip 5b. The back plate of the housing is made to open to facilitate cleaning of the mirrors; a hole 6 is provided to allow movement of the lens mount, in and out, for focussing. 7 is a hood or light shield with sides 7a, 7b hinged to the housing so that they may be folded flat when not in use. The top of the hood or light shield 7c is of cloth to allow for this folding. 8, 8a are extensions from the housing provided to ensure correct location of the device, screws 8b are used for firmly holding the whole together. 9 is a tunnel or rectangular tube to allow viewing via mirrors 3 and 4 through a sunk type of view finder in the camera body. An erection or platform 10 may be used for supporting open types of view finders for viewing above the hood or light shield 7. The space between the body of the camera

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1 and the back of the mirror housing 5 is provided to allow for movement of the lens mount 2 for focussing.

Fig. 3 shows part sectional plan of a device having four mirrors arranged to photograph stereoscopic pairs of pictures one above the other in which central mirrors 11, 11a are arranged in crossed positions one above the other and are tilted sufficiently to reflect the wanted light rays through the lens combination. 8c is an elastic strap for holding the device and the camera together. The mirror housing is made in this case without a back plate in this arrangement. The open space 12 between camera and the mirror housing may be made light proof with cloth such as black velvet which may be moved when required to clean the mirrors and focus the lens.

Fig. 4 shows a front elevation of the mirror combination shown in Fig. 3.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. The combination with a single lens camera of four reflectors in front of the lens and by means of which stereoscopic pairs of photographs may be taken simultaneously side by side or one above the other the reflectors being supported in a housing temporarily or permanently

attached to the body of the camera and carrying a forwardly extending hood forming a light shield adapted to prevent unwanted light rays being reflected through the lens. 35

2. In a combination as claimed in claim 1 any known means for adjusting by rotating two of the mirrors about the axes of spindles. 40

3. In a combination as claimed in claim 1 providing access to the mirrors, for cleaning them, by hinging the back plate of the housing or by constructing part of the device with flexible material such as cloth which may be moved for the purpose. 45

4. In a combination as claimed in claim 1 the provision in the camera of a view finder usable via an opening or tunnel through the back of the housing, or of an open type of view finder supported on the camera by a raised platform. 50

5. A combination of a camera, four mirrors, housing, and a forwardly extending hood for photographing stereoscopic pairs of pictures substantially as described and illustrated by Figs. 1 and 2 or by Figs. 3 and 4 of the accompanying drawings. 55

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21.6.43.

[date revised 5.5.44]. 60

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[This Drawing is a reproduction of the Original on a reduced scale.]

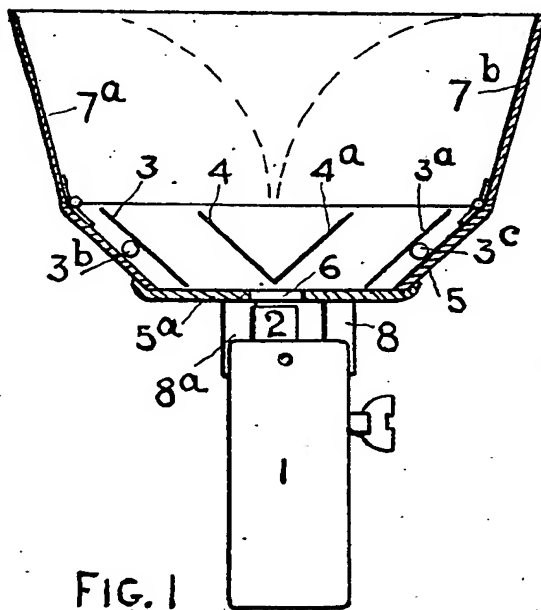


FIG. 1

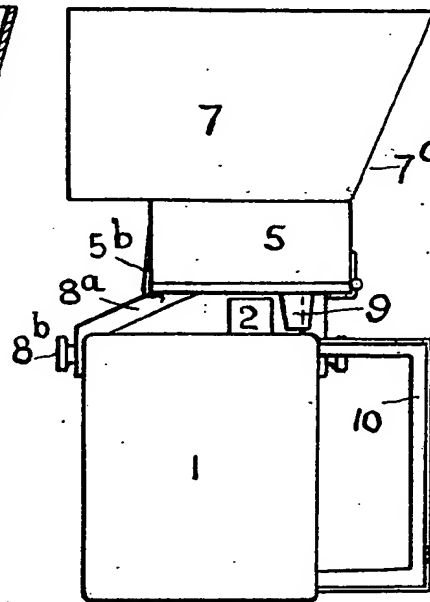


FIG. 2

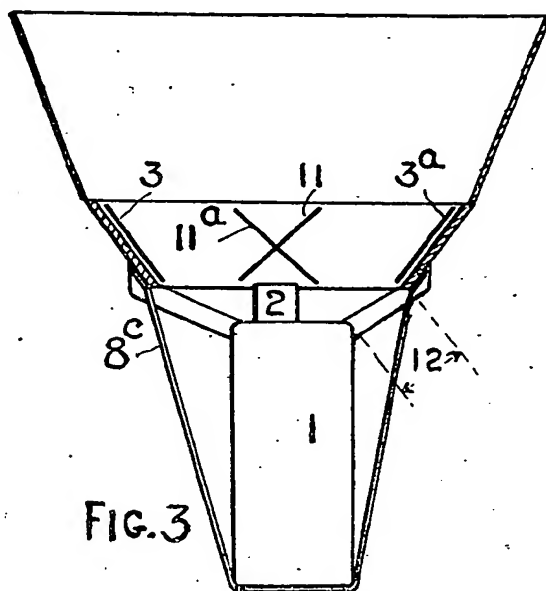


FIG. 3

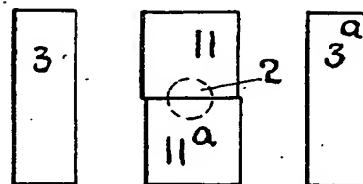


FIG. 4

Malby & Sons, Photo-Litho

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